

REMARKS

Following entry of the above amendments to the claims, claims 1-23 remain pending in the present application. Claims 1, 2, 9-12, 16-17 and 21 stand rejected.

Examiner's Rejections and Applicants' Responses**1. Examiner's Rejection of Claims 1, 2, 12, 16, 17 and 21 under 35 U.S.C. 102**

The Examiner rejects claims 1, 2, 12, 16, 17 and 21 under 35 U.S.C. 102 as being unpatentable over Proett et al. (5644076), herein after Proett ('076).

In rejecting claims 1, 2, 12, 16, 17 and 21, the Examiner states:

Regarding claim 1, Proett ('076) teaches a method for determining formation fluid pressure, comprising: providing a tool 200 defining a probe 212 and a variable-volume pretest cavity 220 fluid-coupled to the probe 212; pressing the probe into contact with a mud cake 206 (Col. 6, lines 38-40); expanding the volume of the cavity in sufficient amount to produce a break in the mud cake seal during a draw-down period (Col. 7, lines 26-36); detecting an occurrence of a break in the mud cake seal (307 in Fig. 3, 508 in Fig. 5); holding constant the volume of the cavity immediately after the occurrence of the break in the mud cake seal (Col. 7, line 37), for a sufficient build-up period to establish pressure equilibrium between cavity fluid and formation fluid (Col. 7, lines 44-52); measuring pressure in the cavity (Col. 7, lines 52-53); and setting formation fluid pressure equal to measured pressure (Col. 3, lines 26-29).

Regarding claim 2, Proett ('076) teaches detecting an occurrence of a break in the mud cake seal including measuring cavity pressure and detecting an abrupt change (307 or 508) associated with cavity pressure (Col. 7, lines 33-36).

Regarding claim 12, Proett ('076) teaches a tool for determining formation fluid pressure, comprising: an elongated body 200 adapted for downhole operation; a probe 212 extendable from the elongated body, the probe defining an inflow aperture; a pretest piston pump 218 defining a variable-volume pretest cavity 220 coupled to the inflow aperture (Fig. 2B); control means including a means for expanding the volume of the pretest cavity in sufficient amount to produce a break in a mud cake seal (Col. 7, lines 35-36), means 216 for detecting a break in the mud cake seal, and means for holding constant the volume of the cavity immediately after detecting a break

BEST AVAILABLE COPY

in the mud cake seal, for a sufficient build-up period to establish pressure equilibrium between the pretest cavity fluid and formation fluid (Col. 7, line 37 and 52-53); and a pressure sensor 216 coupled to measure pressure in the pretest cavity.

Regarding claim 16, Proett ('076) teaches the tool including a constant-volume flow line 219.

Regarding claim 17, the flow line 219 includes a dedicated probe 212.

Regarding claim 21, Proett ('076) teaches the tool comprising a sample line 215 coupled to the cavity 220, and an isolation valve 214 located between the sample line and the cavity.

2. Examiner's Rejection of Claims 9-11 under 35 U.S.C. 103(a)

The Examiner rejects claims 9-11 under 35 U.S.C. 103(a) as being unpatentable over Proett ('076) in view of Desbrandes.

In rejecting claims 9-11, the Examiner states:

Regarding claims 9-10, Proett teaches all of the limitations as set forth above but does not mention that the pretest cavity is expanded at a predetermined constant rate. Desbrandé, in the article "Wireline Formation Testing: A New Extended Drawdown Technique" teaches expanding a pretest cavity in a formation pressure testing tool at a constant rate that falls within the range of 3-160 cc/minute (page 42, lines 1-3). It would have been obvious to one of ordinary skill in the art to combine the teachings of Desbrandes with the method of Proett because, as Desbrandes points out, the volume expansion must be constant to interpret the pressure measurements with accuracy.

Regarding claim 11, the combination of Proett and Desbrandes does not specifically teach using a volume expansion rate of 5 cc/minute, however Desbrandes does teach expanding at 3.6 cc/minute (page 42, line 1) and that the expansion rate is based on the capacity of the flowlines and what type of fluid is in them. It would have been obvious to one of ordinary skill in the art to use any of a large range of expansion rates, including 5 cc/minute, depending on the capacity of the flow lines and the particular fluid being used.

3. Examiner's Objection to Claims 3-8, 13-15, 18-20, 22 and 23

The Examiner objects to claims 3-8, 13-15, 18-20, 22 and 23 as being dependent upon a rejected base claim, but states that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Applicant's Argument for Allowance of Claim 1

Applicants have amended claim 1 to include "expanding the volume of the cavity to draw fluid from the formation in sufficient amount to produce a break in the mud cake seal during a draw-down period", "detecting an occurrence of a break in the mud cake seal by detecting an abrupt change in cavity pressure" and "minimizing the volume of fluid drawn thereby preventing excessive overshoot; such that formation pressure is determined more quickly and the risk of the tool sticking in the borehole is reduced". These phrases find support in the application as filed in paragraphs [0027] – [0031].

Applicants note that Proett ('076) does not disclose or suggest "minimizing the volume of fluid drawn thereby preventing excessive overshoot; such that formation pressure is determined more quickly and the risk of the tool sticking in the borehole is reduced", as required in claim 1, currently amended, and therefore Proett ('076) does not anticipate the invention as claimed in claim 1.

Applicants respectfully request that the Examiner's rejection of claim 1 under 35 U.S.C. 102, be withdrawn.

5. Applicant's Argument for Allowance of Claim 2

Applicants have amended claim 2 to include "minimizing the volume of fluid drawn includes using a low-volume flow line". This phrase find support in the application as filed in paragraphs [0027] – [0031].

Applicants note that Proett ('076) does not disclose or suggest "minimizing the volume of fluid drawn" "using a low-volume flow line", as required in claim 2, currently amended, and

BEST AVAILABLE COPY

therefore Proett ('076) does not anticipate the invention as claimed in claim 2. Furthermore, when claim 1 is allowed, claim 2 becomes allowable as being dependent on allowed claim 1.

Applicants respectfully request that the Examiner's rejection of claim 2 under 35 U.S.C. 102, be withdrawn.

6. Applicant's Argument for Allowance of Claim 3

Applicants have amended claim 3 to make it depend from claim 1 as currently amended.

Applicants note that claim 3 stands objected to but "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims". Applicants respectfully request that when claim 1 is passed to allowance, claim 3 be passed to allowance, both on its own merits and as depending from allowed claim 1.

7. Applicant's Argument for Allowance of Claims 4-8

Applicants note that claims 4-8 stand objected to but "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims". Applicants respectfully request that when claim 1 is passed to allowance, claims 4-8 be passed to allowance, each on its own merits and as depending from allowed claim 1.

8. Applicant's Argument for Allowance of Claim 9

Applicants respectfully request that when claim 1 is allowed, claim 9 be allowed as being dependent on allowed claim 1.

Applicants respectfully request that the Examiner's rejection of claim 9 under 35 U.S.C. 103(a), be withdrawn.

9. Applicant's Argument for Allowance of Claim 10

Applicants respectfully request that when claim 9 is allowed, claim 10 be allowed as being dependent on allowed claim 9.

Applicants respectfully request that the Examiner's rejection of claim 10 under 35 U.S.C. 103(a), be withdrawn.

10. Applicant's Argument for Allowance of Claim 11

Applicants respectfully request that when claim 10 is allowed, claim 11 be allowed as being dependent on allowed claim 10.

Applicants respectfully request that the Examiner's rejection of claim 11 under 35 U.S.C. 103(a), be withdrawn.

11. Applicant's Argument for Allowance of Claim 12

Applicants have amended claim 12 to require a probe defining "a low-volume flow line", to require a variable-volume pretest cavity coupled to the inflow aperture "via the low-volume flow line", and to require control means including "means for minimizing the volume of fluid drawn, thereby preventing excessive overshoot, such that formation pressure is determined more quickly and the risk of the tool sticking in the borehole is reduced". These phrases find support in the application as filed at paragraphs [0027] – [0031], [0034] – [0035], and in FIG. 3, item 32.

Applicants note that Proett ('076) does not disclose or suggest either a probe defining "a low-volume flow line", a variable-volume pretest cavity coupled to the inflow aperture "via the low-volume flow line", or control means including "means for minimizing the volume of fluid drawn, thereby preventing excessive overshoot, such that formation pressure is determined more quickly and the risk of the tool sticking in the borehole is reduced", as required in claim 12, currently amended. Therefore Proett ('076) does not anticipate the invention as claimed in claim 12.

Applicants respectfully request that the Examiner's rejection of claim 12 under 35 U.S.C. 102, be withdrawn.

BEST AVAILABLE COPY**12. Applicant's Argument for Allowance of Claims 13-15**

Applicants note that claims 13-15 stand objected to but "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims". Applicants respectfully request that when claim 12 is allowed, claims 13-15 be passed to allowance, each being allowable both on its own merits and as depending from allowed claim 12.

13. Applicant's Argument for Allowance of Claim 16

Applicants have amended claim 16, correcting "wherein the tool includes a constant-volume flow line" to read "wherein the low-volume flow line is a constant-volume low-volume flow line". This amendment finds support in the application as filed at paragraphs [0018] and [0030].

Applicants respectfully request that when claim 12 is allowed, claim 16 be passed to allowance, claim 16 being allowable both on its own merits and depending from claim 12.

~~Applicants respectfully request that the Examiner's rejection of claim 16 under 35 U.S.C. 102, be withdrawn.~~

14. Applicant's Argument for Allowance of Claim 17

Applicants have amended claim 17, correcting "wherein the constant-volume flow line includes a dedicated probe" to read "wherein the constant-volume low-volume flow line is associated with a dedicated probe". This amendment finds support in the application as filed at paragraphs [0018] and [0030].

Applicants respectfully request that when claim 16 is allowed, claim 17 be passed to allowance, claim 17 being allowable both on its own merits and as depending from claim 16.

~~Applicants respectfully request that the Examiner's rejection of claim 17 under 35 U.S.C. 102, be withdrawn.~~

BEST AVAILABLE COPY**15. Applicant's Argument for Allowance of Claims 18-19**

Applicants have amended claims 18-19, correcting "constant-volume flow line" to read "constant-volume low-volume flow line". This amendment finds support in the application as filed at paragraphs [0018] and [0030].

Applicants respectfully request that when claim 16 is allowed, claims 18-19 be passed to allowance, each being allowable both on its own merits and as depending from claim 16.

16. Applicant's Argument for Allowance of Claim 20

Applicants note that claim 20 stands objected to but "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims". Applicants respectfully request that when claim 12 is allowed, claim 20 be passed to allowance, claim 17 being allowable both on its own merits and as depending from claim 12.

17. Applicant's Argument for Allowance of Claim 21

Applicants have amended claim 21, correcting "sample line" to read "sample riser" and clarifying "cavity" to read "variable-volume pretest cavity". This amendment finds support in the application as filed at paragraph [0045] and FIG. 7.

Applicants respectfully request that when claim 12 is allowed, claim 21 be allowed as depending from claim 12.

Applicants respectfully request that the Examiner's rejection of claim 21 under 35 U.S.C. 102, be withdrawn.

18. Applicant's Argument for Allowance of Claims 22-23

Applicants note that claims 22-23 stand objected to but "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims". Applicants respectfully request that when claim 12 is allowed, claims 22-23 be passed to allowance, each being allowable both on its own merits and as depending from allowed claim 12.

BEST AVAILABLE COPY**SUMMARY**

Following entry of the amendments above to the claims, the specification and the drawings, it is believed that the application is now in condition for allowance.

Consideration of the application and issuance of a notice of allowance is respectfully requested. It is believed that no extension of time is required. If additional fees are required for the timely consideration of this application, please charge deposit account no. 120914.

Respectfully submitted,



John L. Lee

Registration No. 33,942

MAILING ADDRESS

Lee Patent Services
48 Summer Street
Stoneham, MA 02180-1925
781-438-8112

1410\121\Amt-B-Dkt-60-1489-2006-0816.doc